

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
29 September 2005 (29.09.2005)

PCT

(10) International Publication Number  
**WO 2005/090235 A3**

(51) International Patent Classification<sup>7</sup>: **C01G 23/053**,  
C09C 1/36, 1/24, B01J 19/18, 19/00, 19/02

[RU/RU]; Novokurkinskoe shosse -D-25,, Kor 2, Kv.55,  
125466 Moscow (RU).

(21) International Application Number:  
PCT/EP2005/003050

(74) Agents: **PISTOLESI, Roberto** et al.; Dragotti & Asso-  
ciati Srl, Vicolo Campana, 3, I-31100 Treviso (IT).

(22) International Filing Date: 22 March 2005 (22.03.2005)

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ,  
TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA,  
ZM, ZW.

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
2004108580 24 March 2004 (24.03.2004) RU

(71) Applicant (for all designated States except US): **BRETON  
SPA** [IT/IT]; Via Garibaldi, 27, I-31030 Castello di Godego  
(Treviso) (IT).

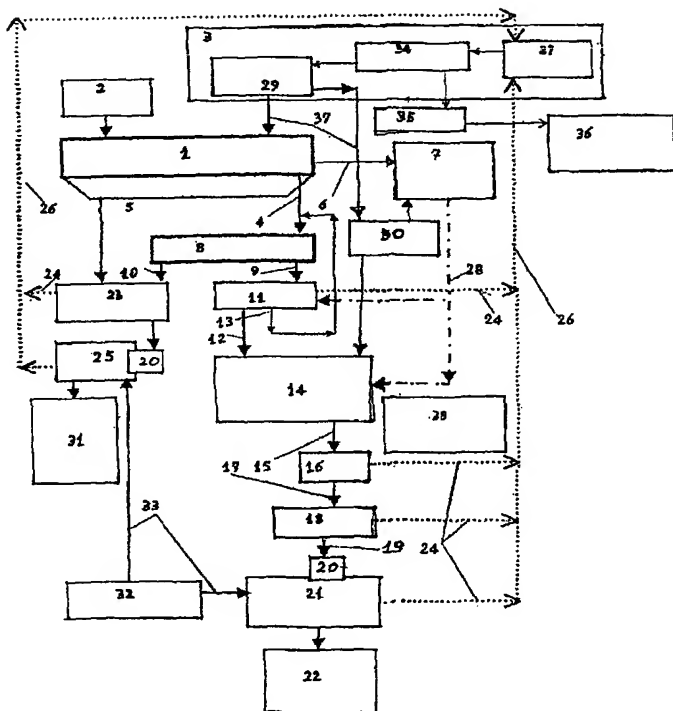
(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,  
FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,

(72) Inventors; and

(75) Inventors/Applicants (for US only): **GORDIENKO,  
Pavel, S.** [RU/RU]; Ulica Magnitogorskaya, 22 Kv.  
15, Vladivostok 690068 (RU). **SINKOV, Gennadi, V.**

[Continued on next page]

(54) Title: PROCESS FOR THE PRODUCTION OF TITANIUM DIOXIDE



Schematic diagram of the facility

(57) Abstract: It is disclosed a process for the pro-  
duction of titanium dioxide comprising the following  
steps: (a) a titanium ore containing iron, preferably il-  
menite, is reacted with an aqueous  $\text{NH}_4\text{F}$  solution; (b)  
the aqueous suspension thus obtained is filtered with  
consequent separation of a sludge fraction, which con-  
tains ammonium fluoroferrates, and a filtrate fraction,  
which contains ammonium fluorotitanates; (c) the fil-  
trate fraction thus obtained is subjected to an hydroly-  
sis reaction; (d) the thus-obtained solid component is  
subjected to a thermal hydrolysis reaction. The plant  
and the reactors for performing the above process are  
also disclosed.

WO 2005/090235 A3



SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

— of inventorship (Rule 4.17(iv)) for US only

**Declarations under Rule 4.17:**

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR,

**Published:**

— with international search report  
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

**(88) Date of publication of the international search report:**  
8 December 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.